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Claim ~~63~~. An oscillating sprinkler unit, comprising:

a sprinkler head mounted for rotation about a first axis;

a drive motor;

a reversible gear train for drivingly connecting said drive

5 motor for driving said sprinkler head in alternate

directions, comprising final drive gear means connected

to said sprinkler head, shiftable drive means comprising

alternately operable terminal gear means and carrier

means for carrying said terminal gear means and shiftable

10 to alternately engageable positions with said final drive

gear means for driving said sprinkler head in alternate

directions;

shifting arm means pivotally mounted adjacent said carrier

means and movable between alternate shifting positions

15 by engagement with shoulder means carried by said final

drive gear means, and lost motion means for connecting

said shifting arm means with said carrier means for

shifting said carrier means between said alternately

engageable positions upon movement of said shifting

20 arm means between said alternate shifting positions;

first over-center biasing means for maintaining said carrier

means in a selected one of said alternately engageable

positions until positively shifted therefrom by said

shifting arm means; and

25 second over-center biasing means for maintaining said

shifting arm means in a selected one of alternate

shifting ^{until engagement} positions by said shoulder means.

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Claim ~~64~~. The sprinkler of claim ⁵²~~63~~ wherein:

said shiftable drive means comprises a drive gear driven by said drive motor and mounted for rotation about a second axis spaced from said first axis;

5 said carrier means is mounted for pivotal movement about said second axis; and

said shifting arm means is mounted for pivotal movement about said first axis.

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Claim ~~65~~. The sprinkler unit of claim ⁵³~~64~~ wherein:

said carrier means comprises a yoke surrounding said first axis and said lost motion means comprises shoulder means on the opposite side of said first axis from said second axis for alternate engagement with said shifting arm means.

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Claim ~~66~~. The sprinkler unit of claim ⁵⁴~~65~~ wherein:

said first over-center means comprises a spring engaging said yoke between said shoulder means.

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Claim ~~67~~. The sprinkler of claim ⁵⁵~~66~~ wherein:

said spring comprises a generally U-shaped leaf spring.

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Claim ~~68~~. The sprinkler system of claim ⁵⁶~~66~~ wherein:

said first over-center means maintains said terminal gear means in engagement until said said yoke is biased by said second over-center means through said shifting arm means.

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Claim ~~59~~. An oscillating sprinkler unit, comprising:

a sprinkler head mounted for rotation about a first axis;
a drive motor;

a reversible gear train for drivingly connecting said

5 drive motor for driving said sprinkler head in alter-
nate directions, comprising a final drive gear con-
nected to said sprinkler head, shiftable drive means
comprising alternately operable terminal gear means
and carrier means for carrying said terminal gear
10 means and shiftable to alternately engageable
positions with said final drive gear for driving said
sprinkler head in alternate directions;

shifting arm means pivotally mounted adjacent said

carrier means and movable between alternate shifting
15 positions by engagement with shoulder means carried
by said final drive gear means, and lost motion
means for providing engagement with said carrier
means for shifting said carrier means between said
alternately engageable positions upon movement of
20 said shifting arm means between said alternate
shifting positions;

first over-center biasing means for maintaining said

carrier means in a selected one of said alternately
engageable positions until positively shifted

25 therefrom by said shifting arms means; and

second over-center biasing means for maintaining said

shifting arm means in a selected one of alternate
shifting positions, *until engagement* by said shoulder means.

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Claim 70. The sprinkler of claim 69 wherein:
said shiftable drive means includes a drive gear driven
by said drive motor and mounted for rotation about
a second axis spaced from said first axis;
5 said carrier means mounted for pivotal movement about
said second axis; and
said shifting arm means mounted for pivotal movement
about said first axis.

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Claim 71. The sprinkler unit of claim 70 wherein:
said carrier means comprises a yoke surrounding said
first axis and said lost motion means comprises
shoulder means on the opposite side of said first
5 axis from said second axis;
said over-center means comprises spring means engaging
said yoke between said shoulder means; and
said spring means comprises a generally U-shaped leaf
spring.

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Claim 72. The sprinkler system of claim 71 wherein:
said first over-center means maintains said terminal gear
means in engagement until said yoke is biased by said
second over-center means through said shifting arm
5 means.

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Claim 13. An oscillating sprinkler unit, comprising:
a housing having a generally cylindrical configuration
with a central axis, an inlet at a lower end for
attachment to a source of water and an outlet at an
5 upper end;
a sprinkler head mounted at said upper end for rotation
about said central axis;
a drive motor mounted in said housing for driving said
sprinkler head;
10 a shiftable gear train comprising terminal drive gear
means, including a pair of terminal gears, and an
internal gear connected to said sprinkler head,
shiftable means for alternatively shifting said
terminal gears alternatively into engagement with
15 said internal gear for driving said sprinkler head
in alternate directions;
said shiftable gear train comprising a drive shaft driven
by said drive motor and a drive gear mounted for
rotation about a second axis offset from said
20 first axis;
a pivoting yoke including a carrier mounted for pivotal
movement about said second axis;
one of said terminal gears mounted on said carrier on
one side of said second axis, and the other of said
25 terminal gears mounted on said carrier on the other
side of said second axis;

a shifting arm means mounted adjacent said yoke for
pivotal movement about said first axis to alternate
shifting positions by engagement with shoulder
30 means carried by said internal gear;

lost motion means disposed between said shifting arm and
said yoke for connecting said shifting arm means to
said yoke for shifting said terminal gears to
alternately engageable positions;

35 first over-center biasing means for maintaining said
carrier in a selected one of said alternately
engageable positions until positively shifted
therefrom by said shifting arm means; and

second over-center biasing means for maintaining said
40 shifting arm means in a selected one of said
alternate shifting positions until engagement by
said shoulder means.

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Claim 74. A sprinkler unit according to claim 73
wherein:

said first over-center biasing means comprises a generally
U-shaped spring disposed between said carrier and
5 fixed means on said housing for biasing said carrier
to said one of said alternately engageable positions.